

Reclamation-Wide Power Profile



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Reclamation:

The Bureau of Reclamation, an agency of the Department of the Interior, manages water and related resources in the western United States. Five regions cover the 17 Western States. The Power Resources Office develops and coordinates policy and power activities with external groups and provides leadership and guidance for Reclamation's power program.

NERC Regions:

Western Systems Coordinating Council and Mid-Continent Area Power Pool

PMA Service Area:

Bonneville Power Administration and Western Area Power Administration

Authorization:

The Secretary of the Interior has authority to develop the hydropower potential of Reclamation projects under the following acts:

- The Reclamation Act of 1902 authorized the Secretary of the Interior to develop irrigation and hydropower projects in the 17 Western States.
- The Town Sites and Power Development Acts of 1906 authorized the Secretary of the Interior to lease surplus power or power privileges.
- The Federal Water Power Act of 1920 regulated hydroelectric development of navigable waterways.

- The Reclamation Project Act of 1939 extended the contract term to 40 years for sale of power or lease of power privileges, giving preference to qualifying entities.
- Individual project authorizations.

Purposes:

Reclamation plans, develops, and manages multipurpose water projects in the 17 Western States. The primary purposes of Reclamation projects have been irrigation; flood control; and water for domestic, industrial, and municipal uses. Including power in multipurpose Federal Reclamation projects is considered when it is in the national interest, economically justified, feasible by engineering and environmental standards, required for pumping to supply irrigation water, and capable of repaying its share of the Federal investment in accordance with Reclamation law.

Power Uses:

Electric power produced at Reclamation's 58 hydropower facilities is used for pumping on Reclamation projects or sold as excess power. Reclamation power is marketed and transmitted by Federal PMAs. Preference for firm power contracts is given to municipalities, public corporations, public agencies, and cooperatives or other nonprofit organizations. Revenues from power sales are used to repay project costs. In addition, power revenues are scheduled to repay portions of other project costs, such as salinity control and irrigation.

Facts:

Reclamation's power facilities cover a wide range of capacities, designs, and functions. This report provides powerplant facts, locations, purpose, special issues, etc. Similar information is available on the Internet at www.usbr.gov/power.

History:

Reclamation's original purpose, "to provide for the reclamation of arid and semiarid lands in the West," now covers a wide range of interrelated functions. These include providing municipal and industrial water supplies, hydroelectric power generation, irrigation water for agriculture, water quality improvement, flood control, river regulation, navigation improvement, fish and wildlife enhancement, recreation, and research in water management. Reclamation programs involve close cooperation with the Congress, other Federal agencies, States, Indian Tribes, local governments, academic institutions, water user organizations, wildlife groups, recreation groups, conservation groups, and others.

Electric power generated at Reclamation damsites was initially used to process materials as well as to construct the engineering works. The plants powered sawmills, concrete plants, cableways, hoists, giant shovels, and draglines; they also powered lights for round-the-clock

operations at some damsites. After construction, the energy-powered pumps provided drainage or conveyed water to lands that gravity canal systems could not reach. Surplus power was sold to municipal and farm consumers and helped meet local industrial demands for electricity. Hydroelectric features were included in project construction costs repaid by the water and power users under provisions of the Reclamation Act of 1902.

Location: Reclamation operates in the 17 Western States and has powerplants in 11 of the most western States.

Rivers: Reclamation's 58 hydropower electric powerplants are on 18 major rivers and numerous smaller tributaries.

Installed Capacity (FY 2001): 14,741 MW **Initial Operation:** 1909-1994

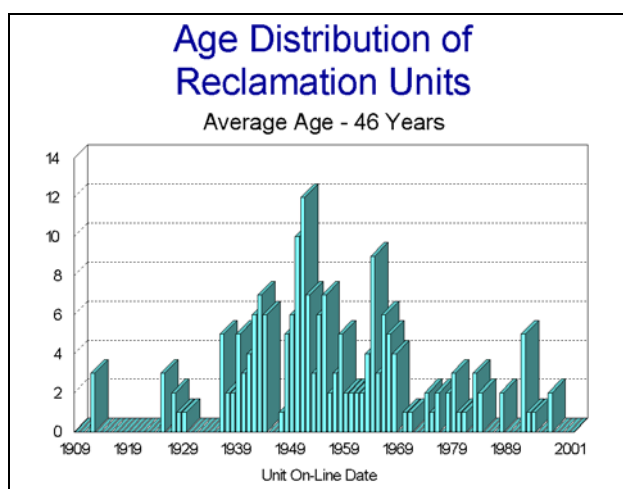
Net Generation (FY 2001): 34.4 billion kWh **Average Unit Size¹:** 77 MW

Average Powerplant Size: 254.2 MW **Average Age:** 46 years

Range of Rated Head: 24 to 2,490 feet **Remotely Operated:** 44 Yes and 14 No

Average Annual Plant Factor: 27 percent

The accompanying chart portrays the age distribution of the generating units.

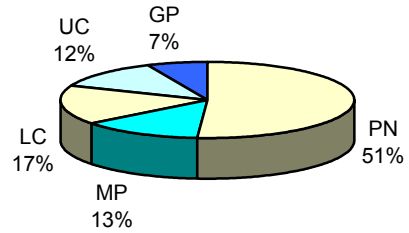


¹The average includes the portion of San Luis' eight units jointly owned with the State of California.

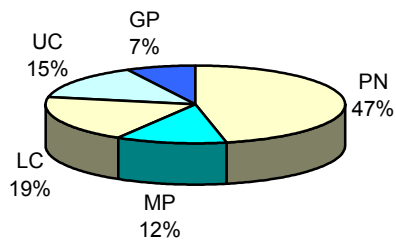
Reclamation-Wide

The total capacity for Reclamation in fiscal year 2001 was 14,741 megawatts. The regional breakdown is shown on the accompanying chart.

Reclamation Capacity
Regional Percentages
Fiscal Year 2001



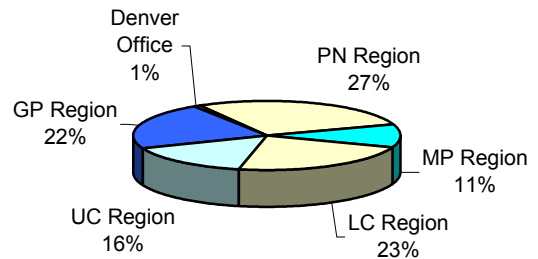
Reclamation Net Generation
Regional Percentages
Fiscal Year 2001



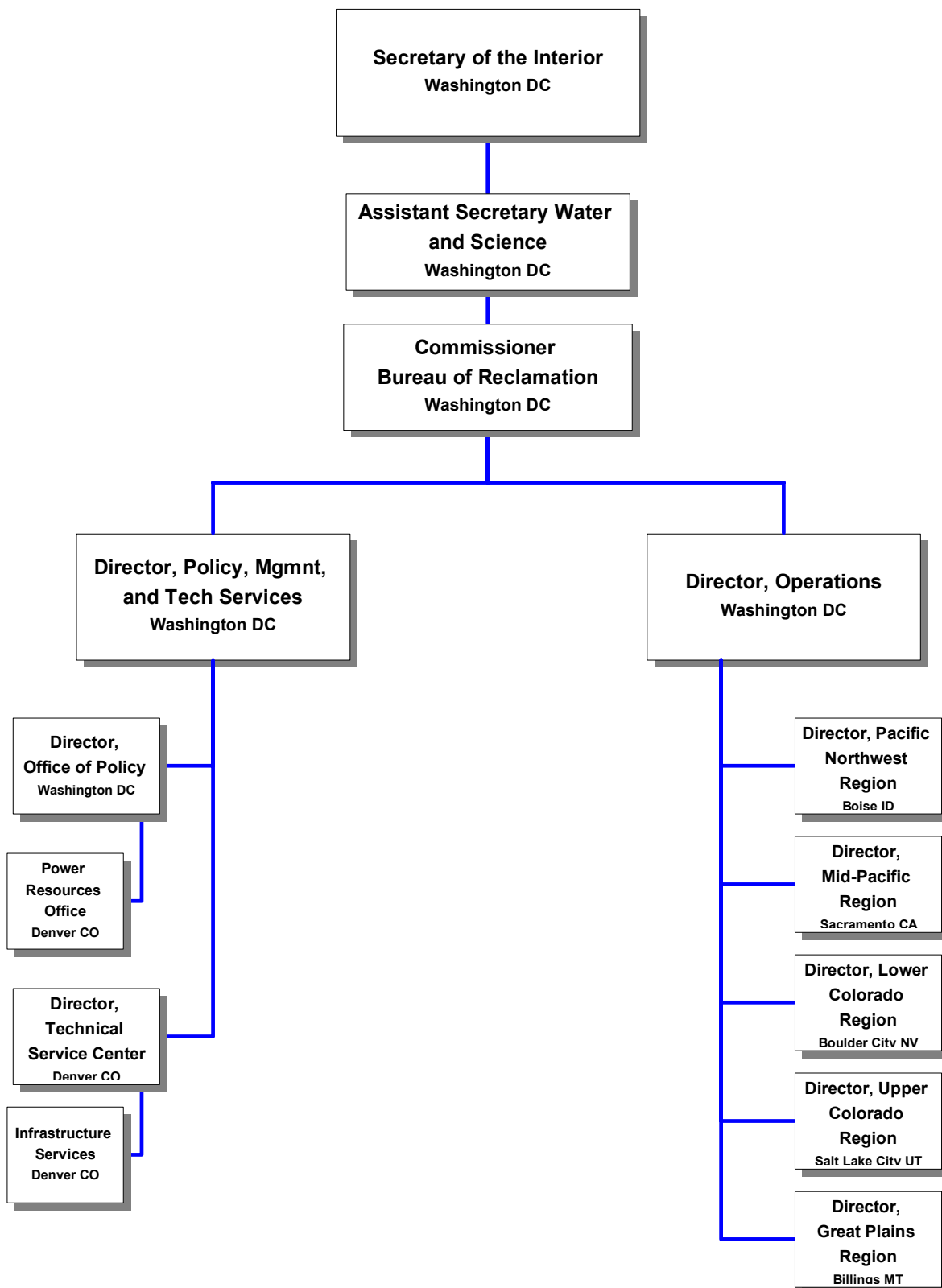
In fiscal year 2001, Reclamation produced 34,427,418 net megawatt hours of energy.

In fiscal year 2001, the power employees worked the equivalent of 593 full time employees.

Reclamation Full Time Equivalent
Regional Percentages
Fiscal Year 2001



Organizational Structure:

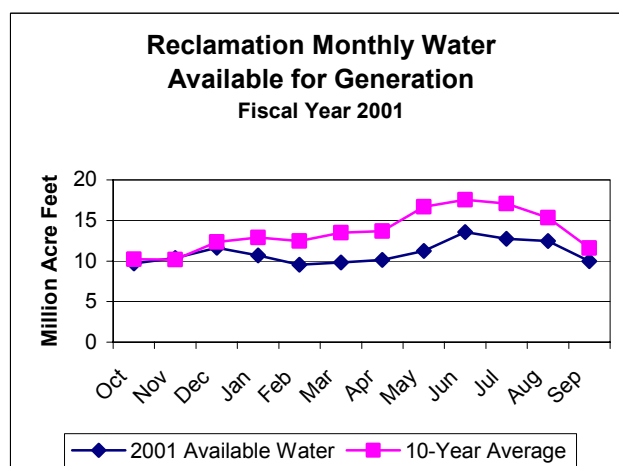
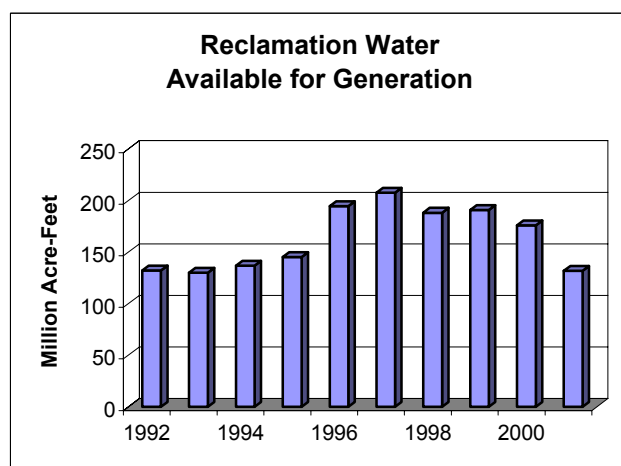
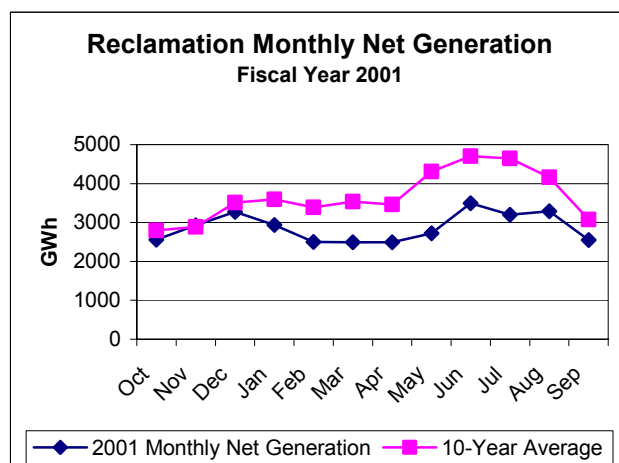
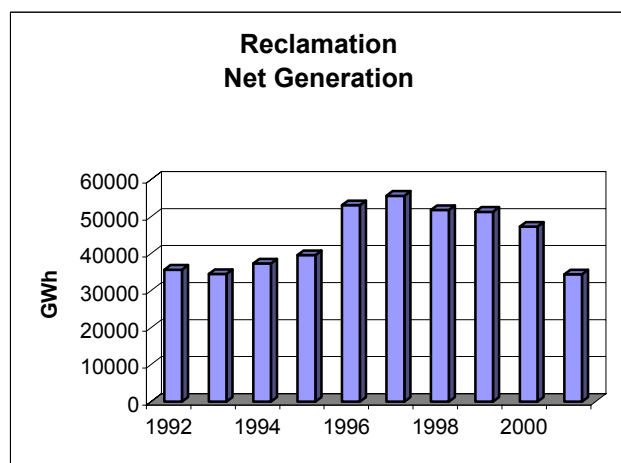


This organizational structure displays the offices directly involved with the power program.

Generators

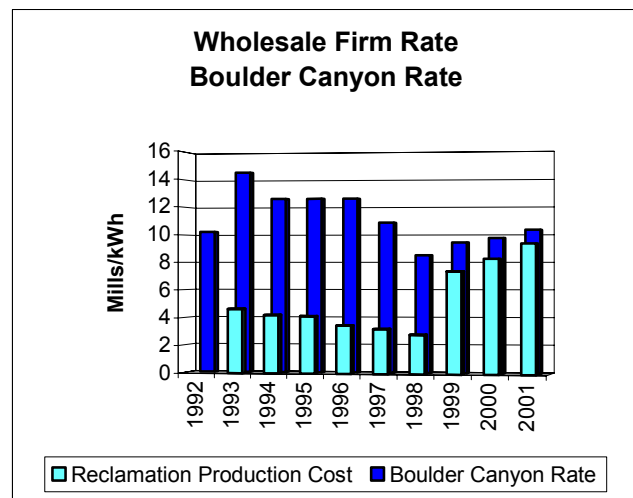
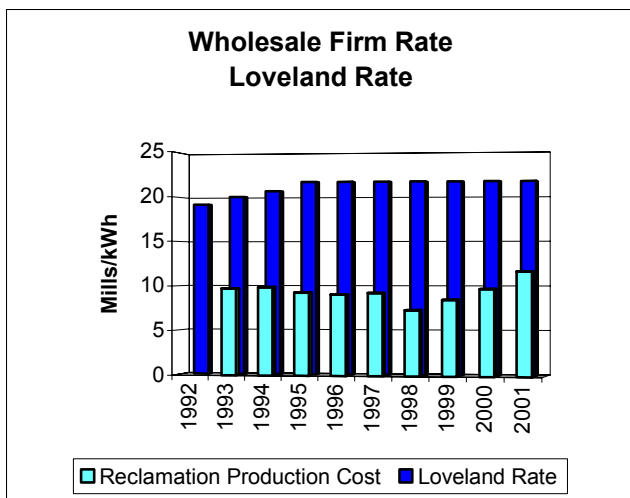
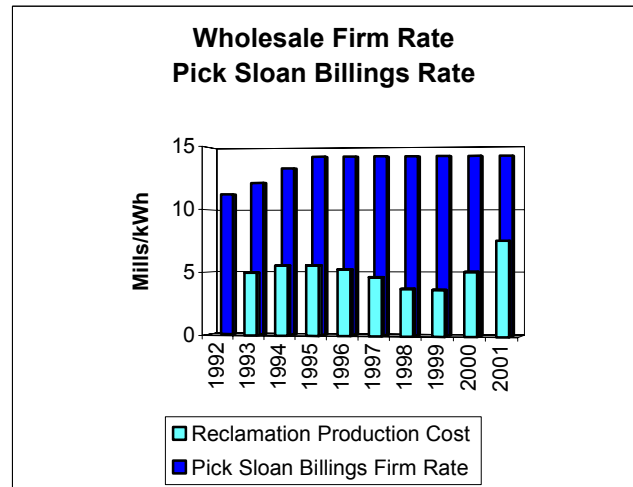
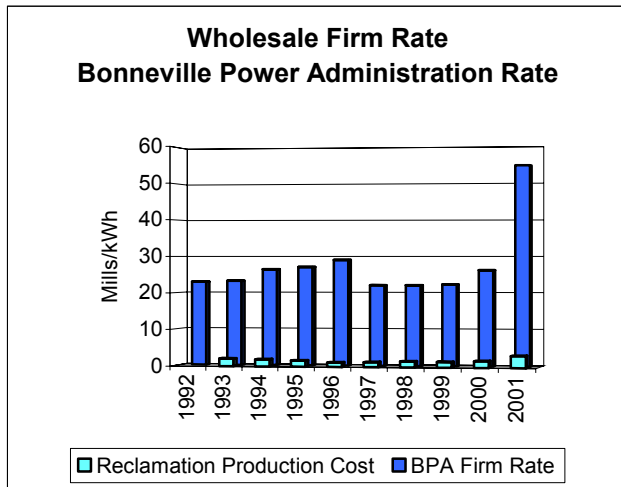
Reclamation Generators Existing Number and Capacity Fiscal Year 2001				
Region	Number of Powerplants	Number of Units	Installed Capacity (MW)	Net Generation (GWh)
PN	10	56	7,535	16,057
MP	12	40	1,964	4,123
LC	3	28	2,439	6,671
UC	12	26	1,805	5,042
GP	21	44	998	2,535
Reclamation Total	58	194	14,741	34,427

Generation

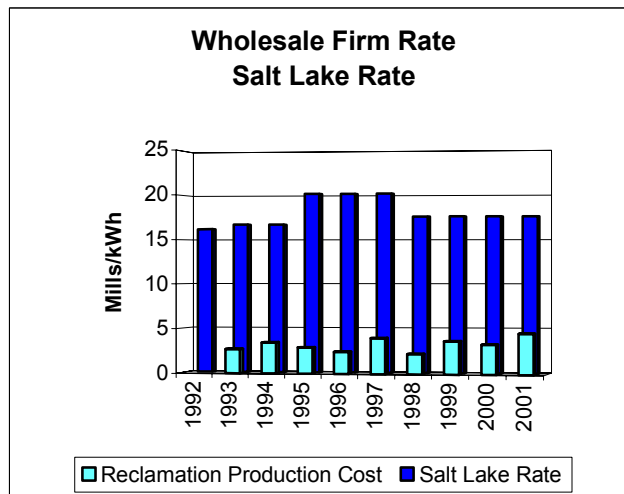
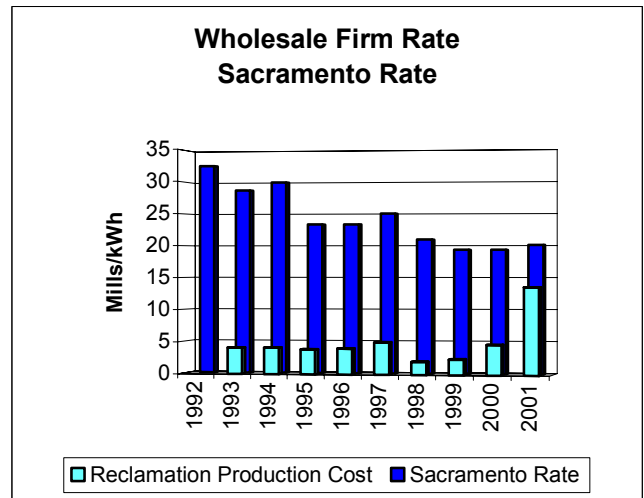
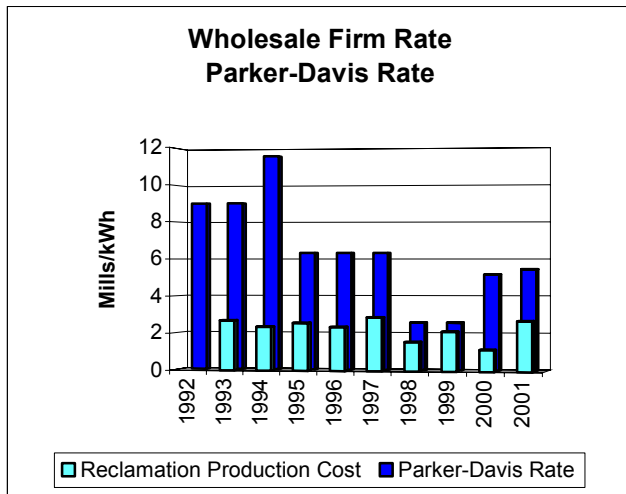


Prime Laboratory Benchmarks

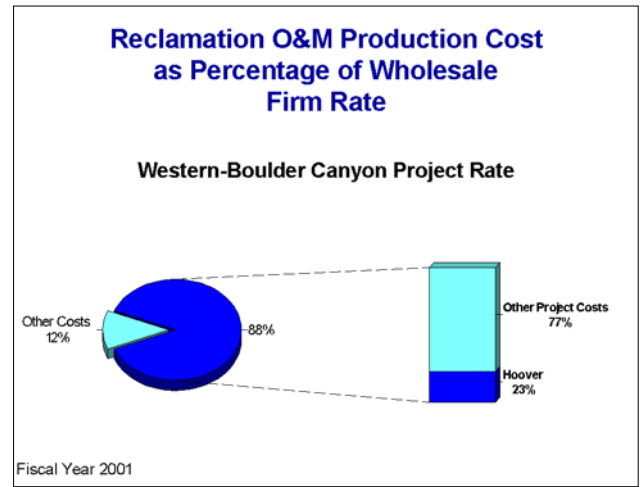
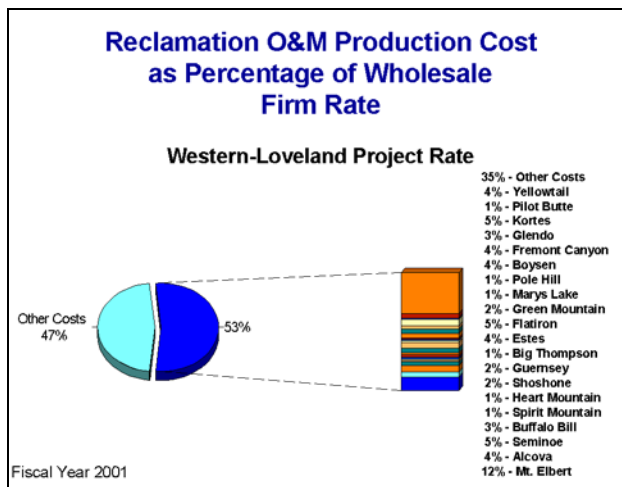
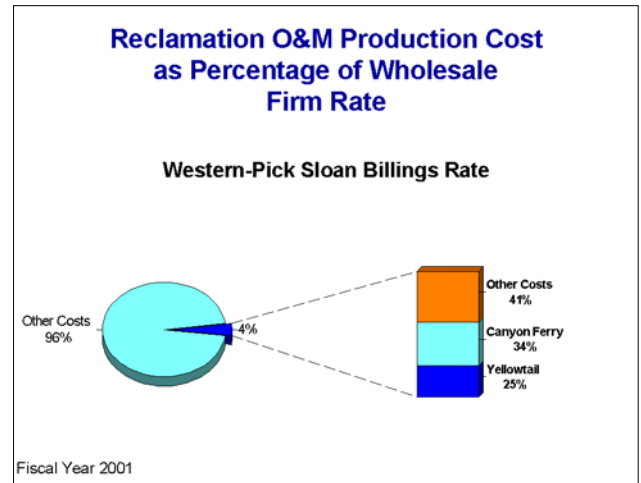
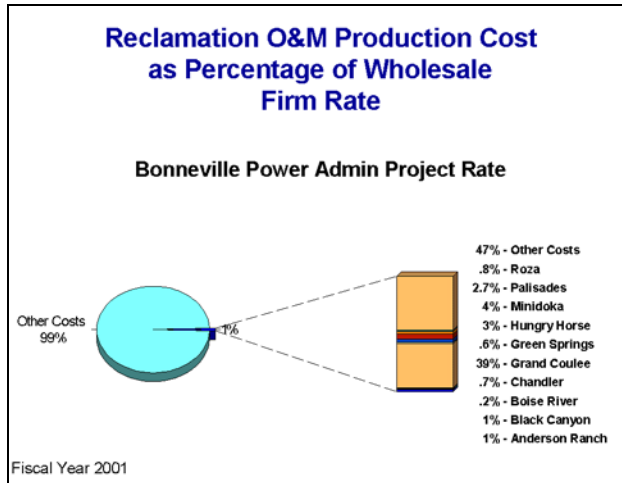
Benchmark 1 Wholesale Firm Rate



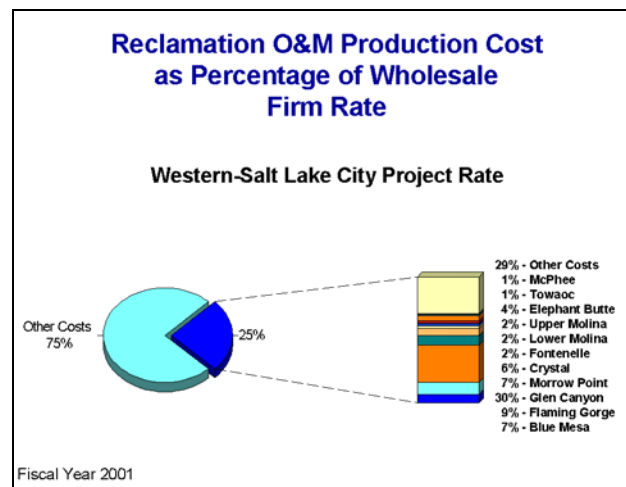
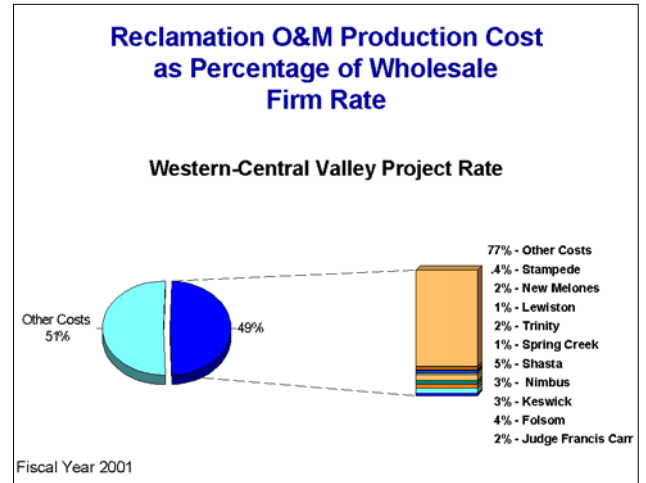
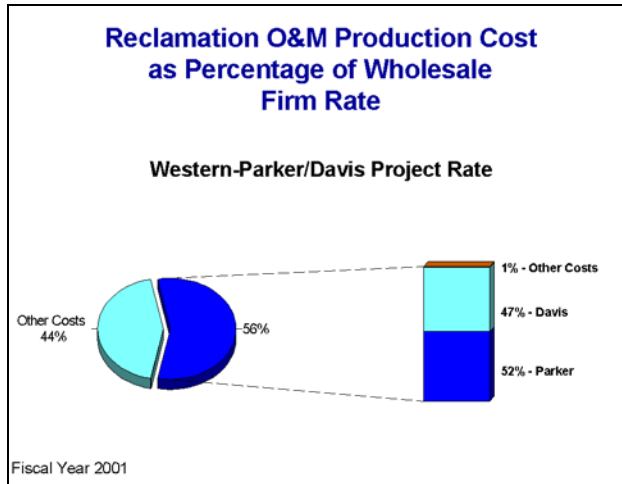
**Benchmark 1
Wholesale Firm Rate**



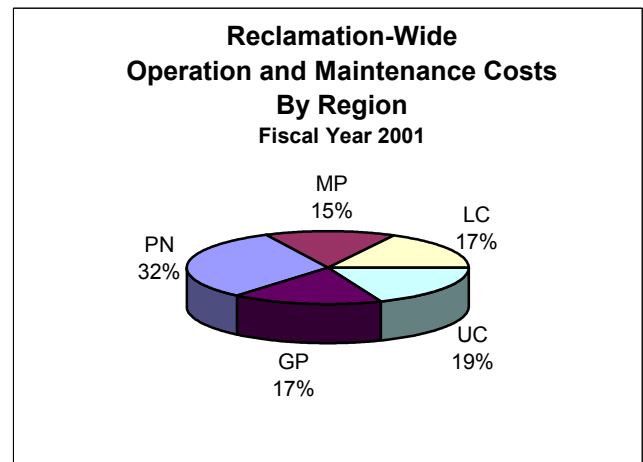
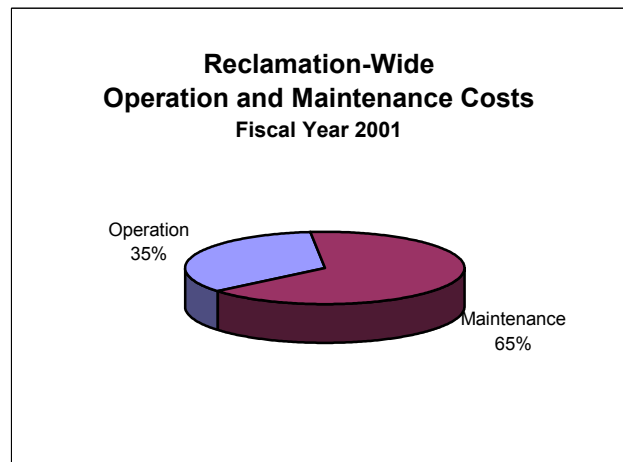
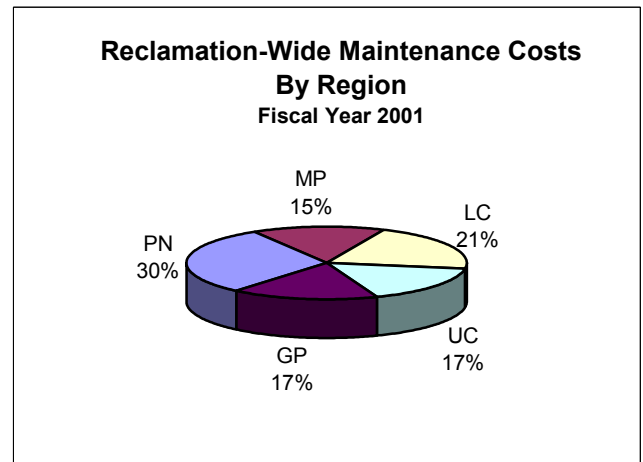
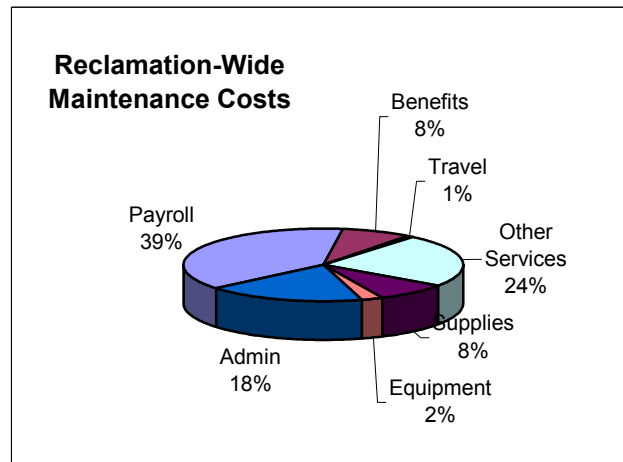
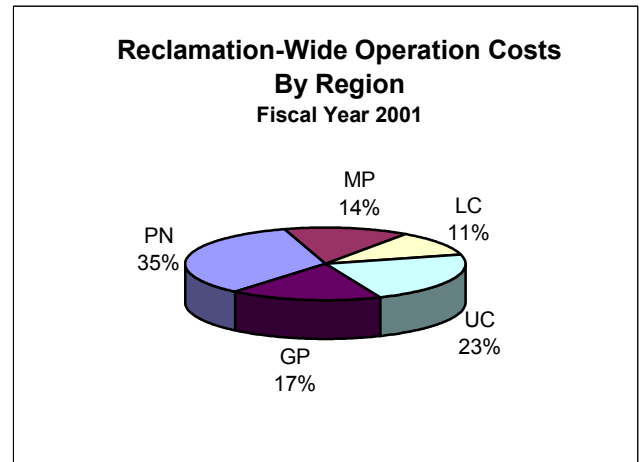
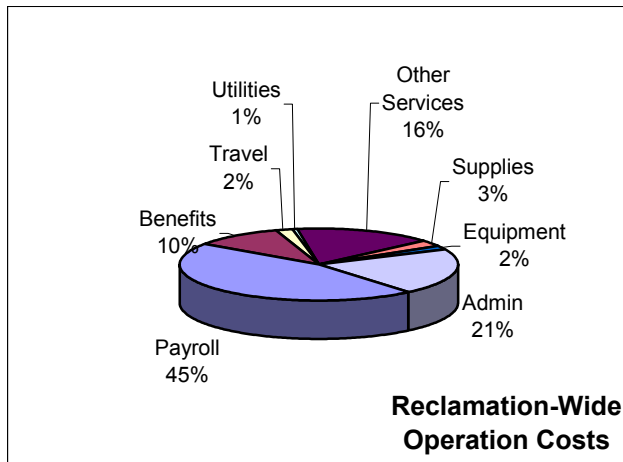
Benchmark 2
Reclamation's Production Cost as Percentage of Wholesale Firm Rate



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Reclamation's Production Cost as Percentage of Wholesale Firm Rate

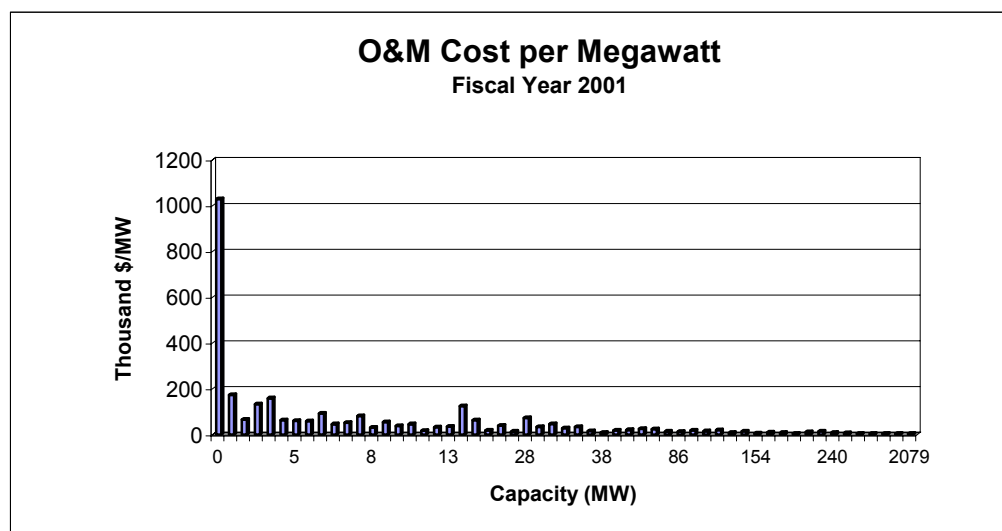


**Benchmark 3
Production Cost**



Benchmark 3 Production Cost

A plot of O&M cost per kilowatt-hour by plant capacity is shown below.

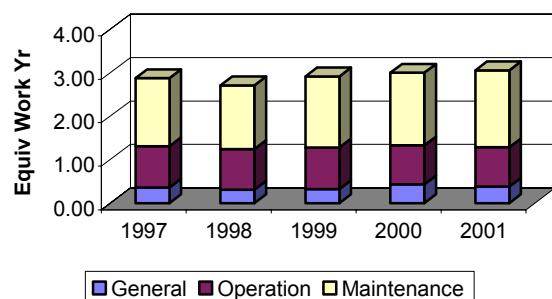


Benchmark 4 Workforce Deployment

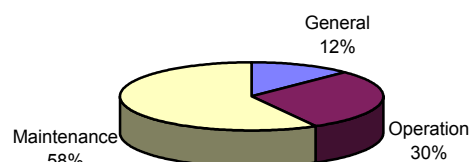
Reclamation-Wide 2001 Equivalent Work Year Levels

	Plant Total Equiv	DO Additive	Total Allocated to Plant	Total per Unit	Total per Megawatt
General	69.1	4.9	74.0	0.4	0.00
Operation	175.1	0.0	175.1	0.9	0.01
Maintenance	344.4	0.0	344.4	1.8	0.02
Total Equiv Work Yr	588.5	4.9	593.4	3.1	0.04

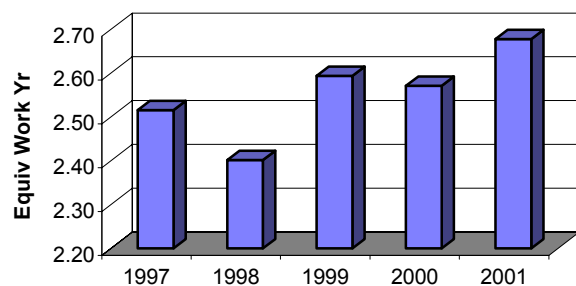
Reclamation-Wide Equivalent Work Year per Generating Unit



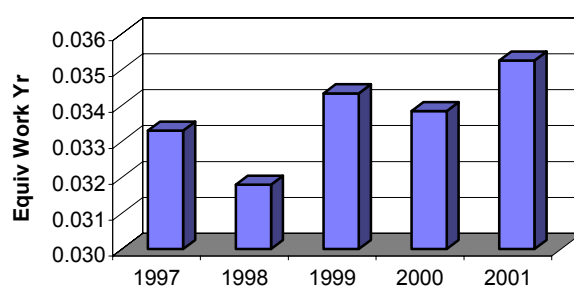
Reclamation-Wide Equivalent Work Year per Generating Unit Fiscal Year 2001



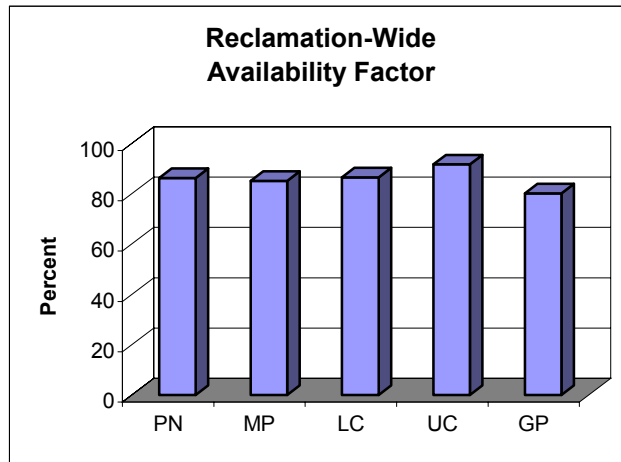
Reclamation-Wide O&M Equivalent Work Year per Generating Unit



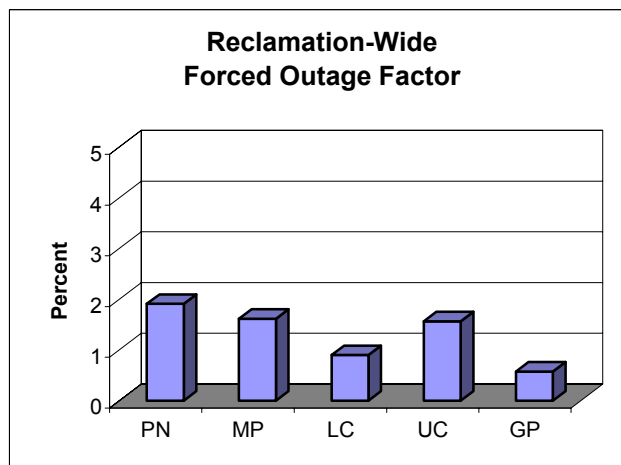
Reclamation-Wide O&M Equivalent Work Year per Megawatt



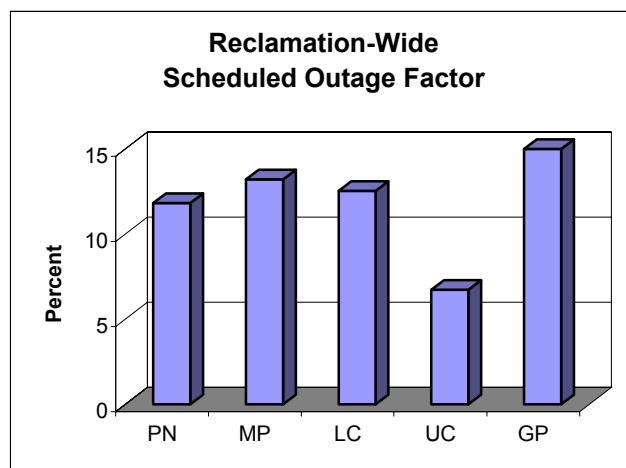
**Benchmark 5
Availability Factor**



**Benchmark 6
Forced Outage Factor**



Benchmark 7 Scheduled Outage Factor



Benchmark Data Comparison

Fiscal Year 2001	Total Reclamation Average	Industry Average	Best Performers
Wholesale Firm Rate Mills/kWh	*33	***67	Not Available
Production Cost as Percentage of Wholesale Firm Rate	7.4%	Not Applicable	Not Applicable
O&M Cost \$/MWh	2.6	4.0	1.4
O&M Costs \$/MW	6,211	13,861	3,074
O&M Equiv Work Year per MW	0.04	Not Available	0.00
Availability Factor	86.7	**90.83	99.8
Forced Outage Factor	1.6	**3.3	0.1
Scheduled Outage Factor	11.8	**5.87	0.2

*Weighted by Net Generation

**1999 NERC Average

***Energy Information Administration Data

Reclamation-Wide Power Performance

